

R E M A R K S

Claims 1-8 and 15 are in the case. The amendment to the Specification updates the information regarding the applications listed therein.

In this Response, the abbreviation DBDMH means 1,3-dibromo-5,5-dimethylhydantoin, and the abbreviation BCDMH means 1,3-bromochloro-5,5-dimethylhydantoin.

Rejection under §102(e)

Claims 1-4, 6-8, and 15 stand rejected under 35 U.S.C. §102(e) over Howarth (U.S. 2003/0077365). This rejection is based on the disclosure in paragraph [0052] of Howarth 2003. However, the present claims are deemed to distinguish over the disclosure of paragraph [0052], for example, by specifying that the biocidally-effective amount of the at least one 1,3-dibromo-5,5-dialkylhydantoin provides in the water a biocidally effective "free chlorine" level that is higher than would be provided by an equimolar quantity of N,N'-bromochloro-5,5-dimethylhydantoin. In contrast, the work reported in paragraph [0052] involved use of DBDMH granules which dissolved more rapidly than the briquettes of BCDMH. Consequently, higher target residual biocide concentrations of DBDMH were used as compared to the target residual biocide concentrations of BCDMH. Nor is there sufficient information in paragraph [0052] from which any conclusion could be reached as regards relative effectiveness of these two substances on an equimolar basis. It is submitted therefore, that there is no anticipation of Claims 1-4, 6, 8, and 15 that the rejection is untenable, and that the rejection should be withdrawn.

The repetition of this rejection is not understood, as a Notice of Allowance issued after the above argument was presented in response to this same rejection in the Final Office Action of July 5, 2007.

Rejection under §103(a)

Claims 1-8 and 15 stand rejected under 35 U.S.C. §103(a) as obvious over White et al. (U.S. 4,119,535) in view of Paterson (U.S. 3,412,021). Applicants respectfully

request reconsideration and withdrawal of this rejection.

It is submitted that White et al. has been mischaracterized in the present Office Action. There does not seem to be any discussion therein of treating biofilm; in fact, the word "biofilm" does not appear in White et al. In addition, the only mention of the term "free chlorine" in White et al. is at column 2, line 66.

White et al. teaches the use of two corresponding materials, one adapted for use where the initial pH is above the desired value, and the other where the initial pH is below the desired value (column 4, lines 7-10). In the material, a bromine-containing organic compound is used along with a reactive agent. An acidic reactive agent is employed where the pH is to be reduced, and an alkaline reactive agent is employed where the pH is to be raised (column 4, lines 60-62).

Furthermore, White et al. teaches use of a *combination* of bromine and chlorine biocides, stating that "As a result, the pool will be functioning with two halogenic materials" (column 3, line 53). White et al. continue to emphasize the desirability of the combination, stating:

The importance of the bromine reserve is that such halogen is immediately and actively available for sanitation and oxidation. Likewise the combination of chlorine and bromine in the reaction makes the resultant sanitizer less likely to disappear from the pool by action of sunlight, pool bather load, dust, and the like. (Column 3, lines 61 to 66.)

And at column 4, lines 1-3, White et al. states:

A further advantage of the combination is the fact that chlorine and bromine are miscible and offset certain physical properties of each other.

Thus, White et al. does not assist in making the presently claimed invention obvious, and in fact teaches away from the present claims.

As with White et al. above, there appears to be a mischaracterization of Paterson in the present Office Action. In particular, the present Office Action states that Table 1 [of Paterson] teaches the solubility of the DBDMH as less than that of BCDMH, thus able to provide a longer duration of action yet at the same or higher efficacy (Office Action, Page

3, lines 12-14). While Paterson does teach that the solubility of DBDMH is less than that of BCDMH, one of ordinary skill in the art would have concluded that the substance that imparted the higher active halogen value to the water, BCDMH, would have the higher efficacy. Furthermore, in Table II (bottom of column 7), Paterson shows that BCDMH provides a higher total halogen value to the water than does DBDMH, for agglomerates of the same size, and that BCDMH had a better response to two of the three contaminants tested. The Office Action correctly states that the agglomerate in Paterson for treating the swimming pool provided 0.4 ppm or greater active halogen (Page 4, lines 8-9); Applicants point out that the compound that provided this residual was BCDMH (column 10, lines 62-65). Thus, Paterson teaches that BCDMH is a superior biocide to DBDMH.

Combining Paterson with White does not make the presently claimed invention obvious, as White teaches combinations of bromine and chlorine biocides, and Paterson teaches the advantages of, as well as a preference for, BCDMH. The greater active halogen and total chlorine values for BCDMH and its agglomerates, especially in combination with the teachings of White, suggest that BCDMH is the more desirable biocide. Thus, this combination of references would not have made the present invention obvious to one of ordinary skill in the art, since the present invention is directed to a method involving the use of DBDMH.

The Office Action describes the agglomerates of Paterson as granules (Page 3, lines 11-12). The cited passage of Paterson (column 2, lines 52-68) refers to a "solid mass, or agglomerate", but granules are not mentioned. In this connection, the Office Action states that

Although exemplified particles were 3/8 inch or more, it is clear that the granules can be smaller, with greater surface area/weight, if increased duration of effectiveness is desired. The granules used provided > 0.4 ppm active halogen (col. 11, top [of Paterson]). (Office Action, Page 4, lines 6-9.)

The particles used in providing the 0.4 ppm or greater active halogen value described in column 11 of Paterson were *rods*, not granules, and the rods had dimensions of 1 inch x 3 inches (column 10, lines 61-63).

As the Office Action correctly states, Paterson does disclose that the dissolution rate is dependent on the surface area/weight ratio, hardness, and the specific formulation of the agglomerate (column 5, lines 14-19). The Office Action also correctly states that Paterson discloses that such agglomerates may or may not contain a binder (col. 7, lines 23-25). Example 3 of Paterson indicates that with at least one N-halo organic compound (bromo-chloro-triethylene diamine dihydrochloride), it was possible to form agglomerates without use of a binder.

To the extent that Paterson describes actual formation of compacted articles with 1,3-dihalo-5,5-dialkylhydantoins, this is accomplished only by use of a substance which acts to bind the particles of the 1,3-dihalo-5,5-dialkylhydantoin together -- i.e., a binder is used. In Paterson, the only agglomerates formed from a 1,3-dihalo-5,5-dialkylhydantoin compound are produced in Example 1 from a formulation of N-bromo-N'-chlorodimethylhydantoin and a binder system composed of methyl methacrylate copolymer emulsion (42% in water) and sodium silicate (50% in water) and in Example 2 from a mixture of N,N'-dibromodimethylhydantoin and N,N'-dichlorodimethylhydantoin together with aluminum hydroxide gel as a binding agent. However, there is no express teaching or showing anywhere in Paterson that any N,N'-dihalo-5,5-dimethylhydantoin can be agglomerated into a useful product without use of a binder.

According to the Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in *KSR International Co. v. Teleflex Inc.*, 72 Fed. Reg. 57534 (2007), "[A]pplicants may submit evidence or argument to demonstrate that: (1) one of ordinary skill in the art could not have combined the claimed elements by known methods (e.g., due to technological difficulties)". Thus, as outlined above, granules of 1,3-dibromodialkylhydantoins devoid of a binder were not achievable by a person of ordinary skill in the art due to technological difficulties, and thus for this additional reason the presently claimed invention is not obvious over the cited references.

For the foregoing reasons, it is requested that the rejection of Claims 1-8 and 15 under 35 U.S.C. §103(a) as obvious over White et al. in view of Paterson be reconsidered and withdrawn.

In light of the foregoing remarks, the case is believed to be in condition for allowance. Prompt notification to this effect would be sincerely appreciated.

If any matters remain that require further consideration, the Examiner is requested to telephone the undersigned at the number given below so that such matters may be discussed, and if possible, promptly resolved.

Please continue to address all correspondence in this Application to Albemarle Corporation at the address of record.

Respectfully submitted,

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